


TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1925

No. 263 

**UNION INSULATING & CONSTRUCTION COMPANY,
APPELLANT,**

vs.

THE UNITED STATES

APPEAL FROM THE COURT OF CLAIMS

FILED JANUARY 30, 1925

(30,840)



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[fol. 1] **IN COURT OF CLAIMS OF THE UNITED STATES**

B-92

UNION INSULATING & CONSTRUCTION COMPANY, Petitioner,

vs.

UNITED STATES OF AMERICA, Respondent

I. PETITION OF THE UNION INSULATING & CONSTRUCTION COMPANY FOR JUDGMENT OR ALLOWANCE UPON CLAIMS ARISING UNDER CONTRACT, DATED MAY 28, 1920, FOR CONSTRUCTION WORK AT U. S. NITRATE PLANT No. 2, MUSCLE SHOALS, ALABAMA—Filed May 6, 1922.

The petitioner, Union Insulating & Construction Company, a corporation, by Haight, Adcock, Haight & Harris, its attorneys, brings this, its petition, against the United States of America, and thereupon shows and charges the following:

1. The petitioner is a corporation, organized and existing under the laws of the State of Illinois and has its principal place of business at No. 20 West Jackson boulevard, City of Chicago, Illinois. Your petitioner, at the time of the making of the contract herein-after mentioned, was known as, and its name was Union Insulating Company. Thereafter, and pursuant to the Statutes of the State [fol. 2] of Illinois in such case made and provided, the petitioner changed its name to Union Insulating & Construction Company.

2. On or about May 28, 1920, the petitioner, herein sometimes called "Contractor," made and entered into a contract with the United States of America, through Ora Bundy, Major, Quartermaster Corps, United States Army. A copy of said contract is hereto attached and made a part of this petition, being marked Exhibit "A." As a part of said contract there were certain written specifications, and a copy of said specifications is also attached and marked Exhibit "B."

3. The contract provided that the petitioner should, on or before the 10th of December, 1920, furnish all labor, ash skip hoists, cement, 20"x80"± I Beams, and necessary connections required to construct and finish, complete, all work as listed under Clause "B" of "Description of Work," in accordance with specifications dated April 14, 1920, and the drawings relating to said work. The United States was to furnish, at their location on the reservations, at U. S. Nitrate Plant No. 2, all other construction materials. The contractor was to perform all the necessary labor required in transporting such materials to the proper place for use in construction. The United States at all times was to furnish the necessary right-of-way

for ingress and egress to the place of their storage of such materials and the place of ultimate use in construction.

It was further provided that the United States should furnish to the contractor, for the purpose of transporting materials and performing the necessary construction work, such tools and equipment, including locomotives, flat cars, dump cars, hoisting engines, locomotive cranes, steam shovels, concrete mixers, air compressors, [fol. 3] automobile trucks, clam-shell buckets, etc., that was the property of the United States and available at said U. S. Nitrate Plant No. 2, and in such quantities as in the discretion of the Constructing Quartermaster was reasonably necessary for such use in construction, and as could be reasonably furnished by the United States without material detriment or inconvenience to the United States.

The contractor was to assume all responsibility for placing such equipment in first class working condition and the proper care and maintenance of such equipment from the time it was turned over to it by the Constructing Quartermaster, and the contractor agreed to return to the Constructing Quartermaster each piece of equipment promptly after said equipment had served its purpose for construction purposes, and in as good condition as when turned over to the contractor, with the exception of reasonable wear and tear of construction work during its period of use.

The contract was drawn on Government regular printed form, and the printed portions of the contract are the usual printed provisions, all of which appears by the copy of the contract hereto attached.

4. Under the heading "Description of Work" in the Specifications, it was provided that the work should consist of furnishing all labor and all materials, except that listed in the schedule of materials furnished by the Government, contained on other pages of the specifications. In general, the work specified under this heading was installation of ash skip hoists; removal of trestle and track; filling and grading; relaying track incidental thereto at the River Power House; raising stone and coke delivery tracks ten feet above their then elevation; constructing a permanent dumping trestle of steel and reinforced concrete, together with the necessary [fol. 4] fill on trestle approaches; temporary timber trestle under that portion of the track between the outside dumping pits; increasing the height of the four stone dumping pits, two coke hoppers and stone bin; constructing new tracks in the coal storage yard, and all necessary grading.

It was further provided that all material furnished by the Government would be delivered F. O. B. cars, trucks or wagons on reservation, or in storage thereat, and that the contractor should do the necessary hauling to site of work.

The specifications further provided that all material obtained from existing work should, if same was, in the opinion of the Constructing Officer, sound and of suitable character, be used in the proposed work; but such salvaged material, and all other material

furnished by the Government should be adapted to the requirements of the work by the contractor; that the timber work should generally consist, and the contractor should use, in the new construction, timber available from elevated structures, and existing tracks to be removed for trestles—temporary and permanent; railway stringers and ties; walks; batter boards and platform—coal trestle; removing and resetting canopies over coke and stone hoppers, providing missing parts; that all permanent and temporary trestles should be constructed as shown on drawings.

5. The work was completed and last payments made therefor in April, May, June and July, in the year 1921. The time of completion of the work was extended from time to time until the actual completion date. The claims herein made were presented to the Constructing Quartermaster at Muscle Shoals in April, 1921, prior to the date of completion and last payments, and were pending and undetermined at the time the payments were made, and [fol. 5] said payments were made subject to the claims thus made.

6. The claims herein presented consist of damages for delays caused by the Government in the construction of the work; cost of repairing tracks, which the Government agreed, under its contract, to furnish for the delivery of materials; extra cost of cement due to delays of the Government in providing for the commencement of the work; cost of obtaining coal, which the Government agreed to furnish under its contract; cost of using old materials in constructing trestle work and other timber work, which was not suitable for the construction of the trestle work, according to plans; and charges made against the contractor for materials that went into construction, which the Government later claimed should be returned; and other small items. The facts with reference to each claim, and the amount of same are set forth as follows:

A

Claim for Damages Resulting From Defective Condition of Tracks and Right-of-way on Government Reservation at Muscle Shoals, for the Transportation of Materials From the Place of Storage to the Place of Ultimate Use in Construction, \$3,059.65

The contract, above mentioned, provided that the Government should at all times furnish the necessary right-of-way for ingress and egress to the place of then storage of raw materials and the place of ultimate use in construction upon the Government reservation. The right-of-way furnished was railroad tracks thru the Government reservation from the storage yards to the place where the materials were to be used. These tracks were used by other contractors than the petitioner. The Government failed to keep [fol. 6] the tracks in proper condition for the transportation of materials, necessitating the expenditure, by your petitioner, of a large amount of money in taking care of derailments, making repairs to the right-of-way and to equipment used for such transpor-

tation. The railroad ties were rotted at various places, necessitating the replacing of old ties with new ties, the rails were loose and spread, requiring straightening of track, re-spiking rails and doing various other things to keep the said track in proper repair. Derailments occurred requiring an immense amount of labor to place the cars back on the tracks and damage resulted to equipment, requiring repairing to be done. At times during the progress of the work the track crew, varying from twelve to fifteen men, was employed by the contractor making necessary repairs to track, etc. The contractor's daily work sheets show occasions when cranes, locomotives and cars were derailed, and from these work sheets there appears the time spent by the crews in doing the work, above mentioned. The sum of \$1,653.49 was expended by the contractor for labor in connection with derailments. \$705.50 was expended for labor in repairing railway tracks. \$700.66 was expended by the contractor for labor in making repairs to equipment, which was damaged by reason of the improper tracks. Total, \$3,059.65.

[fol. 7]

B

Claim on account of extra labor expended in construction of wood trestle, arising by virtue of change in plans, requiring 11-foot bents, instead of 12-foot bents, as shown by drawings, in order to permit the use of old materials which could not be made adaptable to the plans accompanying the contract, \$8,356.30

Drawing No. 109, made a part of the contract, shows a temporary wooden trestle of 86 bents, or 12 feet from center to center for each bent. After the contract was made the Government changed its plans for said temporary wood trestle, requiring the bents to be 11 feet, center to center, instead of 12 feet, thus making necessary the construction of 20 additional bents for said trestle. There was a large amount of new lumber on said reservation at the time the said contract was made, and the bidders were asked to plan on using this new lumber, which was the only material that could be made adaptable for the construction of said wood trestle with 12 foot bents, center to center, as the said drawing provided. The old material in other trestles, or on hand, could not be made adaptable or used for the construction of the wood trestle according to plan No. 109, above mentioned, consisting of 12 foot bents, as stated, and the contractor, in making his bid, estimated the construction upon the basis of the use of the new lumber available therefor. In order to use old material, which was not theretofore contemplated to be used, the Government changed the plans, as aforesaid, for the construction of the wood trestle and required the contractor to build the said trestle with 11 foot bents, center to center, and to use, in such construction, old materials. In addition, the Government required 6 bents to be constructed in the temporary wood trestle which was made necessary [fol. 8] by virtue of the change of the plan in reference to the bridge seats and north cross-wall on the first pit west of the Limekiln Building and the east bridge seat and north cross-wall on the south portion

of the second pit west of the Limekiln Building. These 6 bents were substituted for bridge seats or concrete wall omitted. The total amount of lumber was 34,012 lumber feet, used in addition to the lumber feet required to be used according to said drawing, No. 109. The cost of handling this additional lumber, according to the contractor's cost sheets, was \$55.00 per thousand, or \$1,870.66. There was 169,764 lumber feet of old lumber used in place of the new lumber, which it was originally contemplated should be used and was intended to be used at the time the contract was made. The extra cost of handling this old lumber and working the same into the said wooden trestle, over the cost of using new lumber, according to the contractor's cost sheets, was \$5,092.92, making a total of \$6,963.58, to which is added an amount equal to 20 per cent of said sum to cover liability insurance, overhead, and profit or \$1,392.72, making a total of \$8,356.30.

C

Claim for Extra Cost of Cement Furnished by the Contractor by Reason of Delay in Execution of said Contract, \$4,419.43

At the time bids were invited the contractor, obtained from the Builders Supply Company, quotations for Portland cement required in the construction work under said contract, the quotation being as of May 3, 1920. This quotation remained open to the contractor for a long time after it was made, but by reason of the failure of the [fol. 9] Government to award said contract and sign same for an unreasonable time after the bids were submitted, the said quotation of said Builders Supply Company was withdrawn and the price of cement was increased so that, for the cement used in said construction work under said contract, the contractor was compelled to pay therefor the sum of \$15,370.23, or \$3.93 per barrel, instead of \$10,950.80, or \$2.80 per barrel, which it would only have been compelled to pay, had it obtained the cement according to said quotation of May 3, 1920. The difference is \$4,419.43, which is the amount of the petitioner's claim under this item.

D

Claim for Coal Purchased by the Contractor and Used in the Construction Work under said Contract, which Coal the United States was Bound to Furnish Thereunder, \$7,870.67

The contract provides that the contractor shall furnish all labor, ash skip hoists, cement, 20"x80# 1 Beams and necessary connections required to complete the work under said contract, and that the Government shall furnish all other construction materials. At the time the bids were invited and the said contract was signed, and during the course of the construction work under said contract, there was on hand, at said Government reservation at Muscle Shoals, a large amount of coal which could be used and was available for use in the construction provided for under said contract. The contractor made

demand upon the officers in charge of said Government reservation for the coal required, but said officers refused to permit the contractor to use same, and the contractor was compelled, in order to carry on its work under said contract, and in order to construct the various things provided for thereunder, to purchase coal in the open market. [fol. 10] It then purchased 820,401 tons of coal, which it used in said construction work, and paid therefor the sum of \$7,870.67.

E

Claim for Materials Charged by the Government Against the Contractor, \$1,493.68

The contract provided that various materials on the reservation should be used by the contractor in the construction work, and the contract further provided that equipment, tools, etc., available, should be loaned by the Government to the contractor, to be used in such construction work. As soon as the contractor began its work under said contract it was the custom of the Constructing Quartermaster to turn materials, tools, equipment and other things over to the contractor. Thus, materials which were to go into the construction or to be used for repairing machinery, were issued as "Property Transfer," and tools, equipment and other materials that were merely loaned (to be returned) were issued as "Property Loan." The claim here involved represents certain materials which had been turned over to the contractor as property transfer, and which were afterwards, and at the end of the work, changed and designated as "Property Loan." Whether the said materials were on property loan or on property transfer, nevertheless they were all returned with equipment to the United States when the work was completed. All of said materials, except some small portions that went into the work itself were used as part of the equipment and were installed in the equipment itself, but inasmuch as it was issued on property transfer and was installed in the equipment no record of same was kept by the contractor as materials to be returned, but nevertheless, as said materials became [fol. 11] a part of the equipment that was loaned, the materials, when the equipment was returned, were in the equipment and thus returned to the United States, so the contractor should have credit, or claim against the United States for the amount charged by the Government against the contractor for this material—\$1,493.68.

F

Claim for Delay in Permitting Contractor to Start Work After Its Force Had Arrived at said Reservation, \$600.00

The contract required the contractor to start work not later than June 10, 1920 and, accordingly, on said date, its superintendents, engineers, time keeper, master mechanics, stenographers, clerks and other help arrived at the site of said work ready to proceed with the construction operations. The Government officers however, refused

and failed to provide the necessary checkers of materials, or to designate where materials could be obtained, and this delay extended for a period of five days, causing damage to the contractor of \$120 per day, or \$600—the actual amount it expended for the salaries and services of the persons in its employ who were kept waiting this length of time.

G

Damages Due to Delay Because Government Ordered Contractor to Cease Work Until Certain Changes Could be Made in Plans, \$1,500.00

At the said U. S. Nitrate Plant No. 2, and on the Government reservation there is located three easterly and westerly railroad tracks. Paralleling these three tracks there was located a track leading to the raw material storage yard on said reservation. This track cut [fol. 12] into and connected with the ladder track near the power transmission tunnel leading to the electric switch house, known as Buss tunnel. In making the fill west of the western-most stone pit, because of the elevation, the said track would, at its approach to the group of three tracks, be covered. In order to prevent this and provide a connection with the ladder track the Constructing Quartermaster ordered the contractor to cease its operation upon the three easterly and westerly tracks until the Government could determine what should be done relative to the connection between said three tracks and said single parallel track. The work was stopped by the Constructing Quartermaster upon the 19th of August, 1920, and at his request, on August 20, 1920, an estimate was given for the track change, and this work remained in cessation until September 7, 1920, when the Constructing Quartermaster directed the contractor to proceed upon the new plan. The actual delay in completion of the work, by virtue of this order to cease work, was five days. The contractor's overhead expense, consisting of superintendents', engineers', time keeper's, stenographers', accountants', clerks' and foremen's salaries, was \$310 per day, or \$1,550 for the entire period of actual delay.

H

Claim for Delay Due to Government's Improper Calculation of Amount of Concrete for Coke Hoppers and Damages Resulting Therefrom, \$1,550.00

According to the Government's statement of quantity of concrete required for coke hoppers, as shown by its drawings, the amount of concrete for each hopper was shown to be 80 cubic yards. It appeared that there was an additional amount of concrete for the two hoppers [fol. 13] equaling 56.6 cubic yards. Consequently the Constructing Quartermaster directed the contractor to cease work until an estimate of cost could be made and approved for this additional yardage of concrete. The estimate was immediately made, but was not approved

until November 11, 1920—a period of approximately thirty days from the date the work was directed to be stopped, namely: October 12, 1920. This caused a delay in completion of the work of five days due to necessity of changing to other work than the work on the hoppers, and, after the estimate was approved, returning thereto. The damage to the contractor was the overhead it was compelled to carry during this five-day period, consisting of Superintendents', Engineers', clerks', stenographers' and other salaries at \$310 per day, or \$1,550.

I

Claim for Delay and Damages Resulting Therefrom in Connection with the Change in the Plans for Making Earth Fill for Railroad Tracks at the River Power-house, \$1,798.00

The contract required the contractor to make an earth fill for the railroad tracks at the river power house west of the ravine and the amount of work was described on the plan and in the specifications. In order to make this fill for the tracks it was necessary to use a large quantity of material, in addition to that shown on the plan and in the specifications. The Constructing Quartermaster required the contractor to prepare a plat and profile plan showing the tracks and earth supporting same in its original condition, and also a profile showing the track at its new elevation, with the proper cross-sections figured out, to determine the amount of yardage necessary. This drawing was prepared and submitted to the Constructing Quartermaster [fol. 14] master and said officer determined to adopt the plan prepared by the contractor and the contractor was directed by the Constructing Quartermaster to prepare an estimate showing the additional money required to make the fill, and also showing the yardage necessary in excess of that described in the original plans and specifications. Upon the contractor's submitting the estimates of money and yardage mentioned, the Constructing Quartermaster directed that further work in connection with the fill and upon the tracks cease until said Constructing Quartermaster notified the contractor to proceed with the work. The delays, by reason of this change in plan, extended from October 28, 1920 to November 26, 1920—a period of 29 days. There was an efficiency loss, due to the change in the arrangement of the work, made necessary by the Constructing Quartermaster's orders. The overhead cost to the contractor for superintendents, engineers, stenographers, clerks, foremen and other help was approximately \$310 per day. The loss in efficiency was at least twenty per cent (20%) and damage to the contractor during that 29 days, due to the causes above mentioned was \$1,798.

7. Petitioner asks that the United States of America be notified of the filing of this petition in the manner prescribed by the Acts of Congress and the rules of this Court, and that answer be filed within the time prescribed by the rules of court and the acts of Congress, and that each of the claims hereinbefore, in this petition described,

be allowed as claims against and obligations of the United States of America and that the petitioner have judgment against the United States of America, to be paid as the law requires, for the total amount of said claims, to wit: \$30,977.33.

[fol. 15] And your petitioner asks that it may have such other and further relief to which it may be entitled.

And your petitioner will ever pray, etc.

Union Insulating & Construction Company, by S. E. McPartlin, President. J. H. Bracken, Secretary

Sworn to by J. H. Bracken. Jurat omitted in printing.

[fol. 16] Union Insulating & Construction Company, the petitioner named in the foregoing petition, does hereby authorize and empower Haight, Adcock, Haight & Harris to represent it in connection with its claim, or claims against the United States of America, set forth in said petition, and to file said petition in the Court of Claims of the United States, and to take whatever action said attorneys may consider necessary and proper in the prosecution of the claim or claims set forth in said petition.

Dated this 28th day of April A. D. 1922.

Union Insulating & Construction Company, by S. E. McPartlin, President. J. H. Bracken, Secretary.

[fol. 17]

EXHIBIT A TO PETITION

Contract for Construction and Repair of Public Works, Including Vessels

Between Ora Bundy, Major, Quartermaster Corps, U. S. Army, and Union Insulating Company (Chicago, Ill.) for Construction Work at U. S. Nitrate Plant No. 2, Muscle Shoals, Ala. A of F "C." Date of Contract May 28, 1920. Appropriation and Amount \$229,000.00 no year. Work to be Begun by June 10, 1920. Work to be Completed December 10, 1920. Sureties Aetna Bonding Co. of Hartford, Conn. Penalty of Bond, \$114,500.00

These articles of agreement, entered into this 28th day of May, 1920, between Ora Bundy, Major, Quartermaster Corps, United States Army, for and in behalf of the United States of America, of the first part, and Union Insulating Company (a corporation existing under the laws of the State of Illinois), of Chicago in the County of Cook, and State of Illinois, (hereinafter designated as contractor), of the second part, Witness:

That the said parties do hereby mutually covenant and agree to and with each other—referring to any circular to bidders, drawings or plans, specifications, memoranda, catalogues, cuts, etc., at-

tached or pertaining hereto, and which, so far as they are applicable, form a part of this contract—as follows:

1. That the contractor shall furnish the materials and services for the construction work specified below, at the place or places [fol. 18] indicated therefor, commencing on or before the 10th day of June, 1920, carrying the work forward with reasonable dispatch and completing the same² on or before 10th day of December, 1920, all in the manner and at the rates or prices (unit prices or total sum, or both, and in accordance with Article 6 hereof), as follows: All labor, ash skip hoists, cement, 20" x 80# I Beams and necessary connections required to construct and finish complete all work as listed under clause "B" of "Description of Work" all in accordance with the specifications dated April 14, 1920, and the drawings numbered 101-107 inclusive and 109-117 inclusive accompanying same. The U. S. of America to furnish at its present location on the reservation at U. S. Nitrate Plant No. 2, all other construction materials, the Contractor to perform all necessary labor required in transporting such materials to the proper place for use in construction, the U. S. of America at all times to furnish the necessary right of way for ingress and egress to the place of present storage of such materials and the place of ultimate use in construction.

The United States Government further agrees to furnish to the Contractor for the purpose of transporting materials and performing the necessary construction work, such tools and equipment including locomotives, flat cars, dump cars, hoisting engines, locomotive cranes, steam shovels, concrete mixers, air compressors, automobile trucks, clam-shell buckets, etc., as are now the property of the United States Government and available at U. S. Nitrate Plant No. 2, and in such quantities as in the discretion of the Constructing Quartermaster, may be reasonably necessary for such use in construction and further may be reasonably furnished by the United States Government without material detriment or inconvenience to the United States Government.

[fol. 19] The Contractor to accept such equipment as is and to assume all responsibility for placing such equipment in first class working condition and the proper care and maintenance of such equipment from the time it is turned over to him by the Constructing Quartermaster.

Further that the Contractor shall return to the Constructing Quartermaster, each piece of equipment promptly after said equipment shall have served its purpose to the Contractor for construction purposes, and in as good condition as when turned over to the Contractor with the exception of reasonable wear and tear of construction work during its period of use.

It is further agreed by and between the U. S. Government and the Contractor that such machine shop facilities as are available at the plant will be furnished the Contractor by the U. S. Government for repairing and maintaining all Government owned equipment.

On completion of the entire contract, all such equipment above mentioned, as has not previously been returned shall be at that time returned to the Constructing Quartermaster by the Contractor and a certificate of clearance showing that all equipment has been properly returned, shall be secured by the Contractor from the Constructing Quartermaster, before final payment shall be received by the Contractor.

It is further understood and agreed by and between the U. S. Government and the Contractor, that such facilities for office room, as may be required for the administrative forces of the Contractor, shall be furnished by the U. S. Government free of charge; also that such quarters and housing facilities for the Contractors' forces as are available within the discretion of the Commanding Officer at U. S. Nitrate Plant No. 2, may be turned to the Contractor and [fol. 20] his forces on such terms and according to such rules and regulations as the Commanding Officer of the post may dictate.

It is further understood by and between the United States of America and the Contractor that both ash bunkers to be installed under this contract shall be of a cylindrical type.

2. That no laborer or mechanic employed by the contractor or any subcontractor on the work herein specified shall be required or permitted to work thereon more than eight hours in any one calendar day except in case of extraordinary emergency. (Act of August 1, 1892, as amended by Act of March 3, 1913.)

3. That no laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work; and it is hereby stipulated that for each violation of this provision a penalty of five dollars (\$5.00) shall be imposed for each laborer or mechanic for every calendar day in which he shall be required or permitted to labor for more than eight hours upon said work; and the amount of the penalties imposed according to this stipulation shall be withheld for the use and benefit of the United States from any moneys due or to become due under this contract, whether the violation of the provision is by the contractor or by any subcontractor: Provided, That no penalties shall be imposed for any violation of this provision due to any extraordinary events or conditions of manufacture, or to any emergency caused by fire, famine, or flood, by danger to life or property, or by other extraordinary event or condition on account of which the President shall subsequently declare the violation to have been excusable; And provided further, That [fol. 21] the President, by Executive Order may waive the provisions and stipulations of this article of the contract during time of war, or a time when war is imminent. On all questions arising under this article the finding of the contracting officer, when approved by the Quartermaster General of the Army, shall be final, subject to an appeal to the Secretary of War within six months

thereafter, and to the right of the contractor within six months after decision by the Secretary of War to file a claim in the Court of Claims, as authorized by the Act of June 19, 1912.

4. That in the performance of this contract the said contractor shall not, directly or indirectly, employ any person undergoing sentence of imprisonment at hard labor which may have been imposed by a court of any State, Territory, or municipality having criminal jurisdiction, nor permit such employment by any person furnishing labor or materials to such contractor in fulfillment of this contract.

5. That the contractor shall hold and save the United States, and all officers and agents thereof, harmless from and against all demands of any nature or kind for or on account of the use and continued use of any patented article, combination, or process which may apply to or affect the material delivered or work done under this contract.

6. That for and in consideration of the faithful performance of the stipulations of this contract the contractor shall be paid, at the office of the contracting officer, or by a disbursing officer designated to make the payments, the prices stipulated in this contract (Article 1) for the materials furnished and services performed; the total amount set forth in Article 1 hereof to be subject, however, to such increase or decrease as may be found necessary under the stipulations of this agreement for the omission or addition of work at unit [fol. 22] prices, and less the amount of penalties, if any, under Article 3, or of any other proper charges. Payments shall be made at such times and in such amounts as the officer in charge of the work may elect, based upon estimates to be made by him of completed work. Upon the first fifty per cent of completed work twenty per cent of the amount of each account shall be retained until the final completion and acceptance by the Government of all the work under this contract: Provided, That on completion and acceptance of each separate building, vessel or distinct public work hereunder for which the cost is stated separately, payment therefor may be made in full, including the retained percentages thereon, if so completed within the time stipulated.

7. That it is expressly agreed and understood that this contract shall be noneffective until an appropriation adequate to its fulfillment is granted by Congress and is available, except in so far as is necessary to provide for the necessities of the service as authorized by Section 3732 of the Revised Statutes of the United States. However, in order to provide for the necessities of the service as authorized by Section 3732 of the Revised Statutes of the United States, it is agreed that the services specified herein, so far as authorized by said section, shall be furnished and performed at the times and in the manner required under this contract, and payments therefor

shall be made as soon as is practicable after funds are appropriated and are available.

8. That in case of the failure of said contractor to comply with the stipulations of this contract according to the true intent and meaning thereof (including the requirement for progress of performance to the satisfaction of the officer in charge, or higher authority), then the contracting officer, or his successor, shall have the right to complete the work in such manner as he shall deem best [fol. 23] for the interests of the public service, either by day's labor and open market purchase of the necessary materials, or by contract, or both, and to use for that purpose the contractor's materials and appliances on the reservation or at the place where the work is being performed, and any excess of cost resulting from such failure, including any charges on account of delay, shall be charged to the contractor. In event, however, of the granting of additional time for performance, the cost of inspection and other expenses and damages (including any loss or damage to the work under construction by fire or other causes) to the United States from and after the date originally fixed for completion until the work shall have been satisfactorily accomplished, except in so far as the same may arise from delays for which the United States is responsible, as determined in each of these particulars by the officer in charge, or higher authority, shall be charged to the contractor and may be deducted from any money due or to become due said contractor from the United States: Provided, That where additional time has been granted the United States shall also have the right to cause the remaining part of the contract, or any portion thereof, to be taken from the contractor whenever, in the opinion of the officer in charge, reasonable and satisfactory progress is not being made, and to secure completion at the expense of the contractor, including charges as above on account of delay.

9. That there shall be no transfer of this contract or of any interest therein by the contractor to any other party, and in case of the violation of this provision the United States, reserving all rights of action for any breach of this contract by the contractor, may refuse to carry out this contract with either the transferer or the transferee.

[fol. 24] 10. That no Member of or Delegate to Congress, or Resident Commissioner, nor any person belonging to or employed in the military service of the United States, is, or shall be, admitted to any share or part of this contract, or to any benefit which may arise herefrom, but, under the provisions of Section 116 of the Act of Congress approved March 4, 1909 (35 Stat. L., 1109), this stipulation, so far as it relates to Members of or Delegates to Congress, or Resident Commissioners, shall not extend, or be construed to extend, to any contract made with an incorporated company for its general benefit.

In witness whereof, the parties aforesaid have hereunto placed their hands the date first hereinbefore written.

Witnesses: E. E. Amory, Capt. Q. M. C. as to Ora Bundy,
Major, Quartermaster Corps, U. S. Army. S. C. Crawford,
as to Union Insulating Company, by Joseph F.
Flaherty.

(Executed in triplicate.)

The following certificate by the contracting officer will be made where the contractor is a corporation, in cases where the filing of evidence referred to may properly be waived:

I hereby certify that I have satisfied myself of the authority of the person signing the contractor's name to this agreement to bind it in the matter, and I have waived the filing of evidence of such authority, as permitted so to do by the Army Regulations.

Ora Bundy, Major, Quartermaster Corps, U. S. Army.

[fol. 25] The following affidavit is required only on the copy of the contract for the Returns Office:

I do solemnly swear (affirm) that the foregoing is an exact copy of a contract made by me personally with the contractor named above; that I made the same fairly without any benefit or advantage to myself, or allowing any such benefit or advantage corruptly to the said contractor, or any other person; and that the papers accompanying include all those relating to the said contract, as required by the statute in such case made and provided.

Ora Bundy, Major, Quartermaster Corps, U. S. Army.

Subscribed and sworn to (affirmed) before me this — day
of —, 19—, — — —.

[fol. 26] The following certificate is required only on the number for the Auditor for the War Department:

I certify that the award of the foregoing contract was made to the lowest responsible bidder for the best and most suitable articles or services, on proposals received in response to the advertisement hereto attached, which was published in newspapers and posted in public places for 13 days prior to the opening, and was sent to principal dealers and contractors at Muscle Shoals, Ala., and vicinity.

Ora Bundy, Maj. Quartermaster Corps, U. S. Army.

(Strike out any portion of this form of certificate that would not be in accordance with the facts. If award was not made to the lowest bidder a full explanation will be submitted.)

This is a true copy. Jos. Kramer, 1st Lieut. Q. M. C.

[fol. 27]

EXHIBIT B TO PETITION

I-A

Construction Division of the Army Schedule of Material to be Furnished by the Government for Improvements at River Powerhouse and Raw Materials Section of the Nitrate Plant #2 at Muscle Shoals, Alabama

The materials listed below are available for use, and must be used in the construction work covered by these specifications. The materials will be delivered by the Government to the Contractor at their present location on the reservation, and the Contractor will be held responsible for the proper care and use thereof after such delivery:

List of Materials to be Furnished by the Government:

Structural Steel

4.....	10" Is.....	@ 25#.....	20' long
3.....	10" Is.....	@ 25#.....	45' long

[fol. 28]

Material for Sewers

150 lin. ft.—60# concrete pipe.

Concrete Material

3,000 tons sand.

Track Material

6,000 lin. ft.—80" rail.

1,000 cross ties.

700 tons slag.

130 pcs. 8" x 8" x 6'-0".

3,000' B. M. 8" x 8"—random lengths.

2-A

Lumber

1" x 8"—6' to 30' long S. I. S. I. E. 25,000' B. M.

80 pcs. 3" x 6" x 18'

100 pcs. 4" x 6" x 14'

700 pcs. 2" x 6" x 18'

100 pcs. 3" x 12" x 20'-0"

600 pcs. 3" x 10" x 14'

150 pcs. 8" x 12" x 18'

300 pcs. 6" x 8" x 20'

200 pcs. 6" x 10" x 14'

[fol. 29] Construction Division of the Army

Specifications for Improvements at River Power-house and Raw Materials Section of the Nitrate Plant #2 at Muscle Shoals, Ala.

Auth:—171—Const.—1.

Funds: "Armament of Fortifications" "C"—No year."

Description of Work

(a) Shall consist of furnishing all labor and all material (except that listed in Schedule of Materials furnished by the Government, pages 1-A and 2-A), required to construct and finish complete the work shown on Drawings 6561-101 to 107, 109 to 116, and as described in these specifications, pages 1 to 25 inclusive.

(b) The work in general will be as follows:

(1) Installing an ash skip hoist complete, including the concrete dumping pits, concrete drainage pipe and head wall.

(2) Removing trestle and track.

(3) Filling and grading.

(4) Relaying railway track incidental thereto at the River Power House.

(5) Raising the existing stone and coke delivery tracks ten feet above their present elevation.

[fol. 30] (6) Constructing a permanent dumping trestle of steel and reinforced concrete, together with the necessary fill on trestle approaches.

(7) A temporary timber trestle under that portion of track between the outside dumping pits.

(8) Increasing the height of the existing four stone dumping pits, two coke hoppers and stone bin to conform to new track elevation.

(9) Constructing batter boards and platform at the present timber coal trestle.

(10) Constructing new tracks in the coal storage yard and all necessary grading, etc., incidental thereto at the Raw Materials Section.

(c) The Contractor shall submit an alternate bid for a fill in manner described in specifications for the temporary wood trestle shown on Drawing No. 6561-109.

(d) All material furnished by the Government will be delivered F. O. B. cars, trucks or wagons on Reservation or in storage thereat. Contractor shall do necessary hauling to site of work.

(e) The attention of the proposed bidders is called to the following work to be advertised for bids as soon as drawings and specifications therefor are completed:

Sewers, Additional Filter Bed and Roads.

Special Notes

(aa) The Contractor shall furnish the Commanding Officer within fifteen days of the date of award of contract, a detailed schedule of material to be furnished by the Government.

(bb) All material obtained from existing work may, if same is in the opinion of the Constructing Officer, sound and of suitable [fol. 31] character, be used in proposed work; but such salvaged material and all other material furnished by the Government shall be adapted to the requirements of the work by the Contractor.

(cc) The Contractor may, at his own option, use any or all of the following Government owned equipment: Two standard gauge locomotives, one locomotive crane, one Bucyrus 70-ton steam shovel, four concrete mixers and one hundred steel-frame wheelbarrows for proposed work, but he shall personally examine condition of such equipment and shall make necessary repairs thereto, and provide all fuel and men to operate same. Such equipment as is used by the Contractor shall at completion of the work be returned by him to the Government in as good condition as reasonable care and usage thereof will permit.

(dd) Equivalents:—Where any particular brand or manufactured article is specified, it is to be regarded as a standard. Another brand or make equally as good in the opinion of the Constructing Officer will be accepted.

(ee) The Contractor shall lay out all work and shall verify all dimensions by actual measurements of the work in place, and will be held responsible for all discrepancies arising from failure to do so.

General Conditions

1. Character of Work:

The work is to be executed in the best and most workmanlike manner according to the drawings and specifications, under the direction and to the entire satisfaction of the United States Officer in Charge, and in conformity with his instructions.

[fol. 32] 2. Superintendence by Contractor:

The Contractor shall give his personal superintendence to the work, or have a competent foreman, or superintendent, satisfactory to the Officer in Charge, on the job at all times during the progress of the work, with authority to act for him.

3. Interpretation of Contract:

Unless otherwise specifically set forth the contractor shall furnish all materials, labor, etc., necessary to fully complete the work according to the true intent and meaning of the drawings and specifications, of which intent and meaning the Officer in Charge shall be the interpreter. Except when otherwise indicated no local terms

or classifications will be considered in the interpretation of the contract or the specifications forming a part thereof.

4. Building Sites and Grades:

The locations and grades of buildings will be indicated by the Officer in Charge, and the sites, which should be examined by intending bidders, shall be cleared by the contractor for the reception of structures. All building operations must be confined to the limits designated by the Officer in Charge.

5. Use of Roadways:

For their hauling contractors must use only the established roadways and such temporary roadways as may be laid out for the purpose by the Officer in Charge or his agent. When it is necessary to cross curbing, bridges must be constructed in a secure manner.

[fol. 33] 6. Drawings and Specifications:

(a) Complete Work Required:

It is intended that the drawings and specifications shall include everything requisite and necessary to the proper and entire finishing of the building, notwithstanding every item necessarily involved in the work is not particularly mentioned; all work when finished is to be delivered up in a perfect and undamaged state.

(b) Discrepancies:

Where no figures or memoranda are given, the drawings shall be accurately followed according to scale. In any case of discrepancy in the figures or drawings, the matter shall be immediately submitted to the Officer in Charge, without whose decision said discrepancy shall not be adjusted by the contractor save only at his own risk; and in the settlement of any complications arising from such adjustment the contractor shall bear all extra expense involved. In cases of difference between drawings and specifications the requirements of the specifications shall govern. Where detail drawings are furnished they will govern in as far as regards methods of construction not described or made clear by the specifications. All drawings on a scale of three-quarters of an inch to one foot, or larger, will be considered detail drawings.

(c) Details:

Additional detail drawings will be furnished, if required, of such portions of the work as the Officer in Charge may desire to explain more fully.

(d) Drawings and Specifications Cooperative:

The drawings and the specifications shall be considered as co-operative and work and material called for by one and not mentioned

[fol. 34] in the other is to be done or furnished in as faithful and thorough a manner as though fully treated of by both.

(e) Ownership of Drawings:

All drawings, specifications, and memoranda relating to the work are the property of the United States, and are to be carefully used and returned to the Officer in Charge at completion, or cessation from any cause of the work.

7. Materials:

(a) Quality of Materials:

Except it be otherwise specified, all materials are to be of the best quality of their respective kinds. Where two or more varieties of materials are specified for any purpose, it shall be optional with the contractor which is used, but in any one building the same material must be used throughout for that particular purpose. In all cases where an article is mentioned in the specifications in connection with the words "best quality," "approved quality," or "equal to," the Officer in Charge shall decide what is the best quality and most suitable articles to use.

(b) Samples:

When required by the Officer in Charge the contractor will furnish him in advance with samples of the material he proposes to use on the building, and samples so furnished must, after having been approved, be adhered to. Samples of cement, lime, plaster, and similar materials will be taken from material delivered on the ground for use, and such material must be delivered at least ten days before it is required for use. The contractor will be held responsible for all [fol. 35] delays caused by rejection by the Officer in Charge of materials of any kind which is found unfit for use or does not conform to samples furnished.

(c) Preference for American Material:

Labor to be performed in the United States. In contracts for material for public improvements in the United States preference shall be given to American material, and all labor thereof shall be performed within the jurisdiction of the United States.

8. Patents:

The contractor shall hold and save the United States, and all officers and agents thereof, harmless from and against all demands of any nature or kind for or on account of the use, and continued use of any patented article, combination, or process which may apply to or effect the material delivered or work done under the contract.

9. Laying out Work:

The contractor must lay out his work, and will be responsible for measurements; he must exercise proper caution and care to verify the figures before laying out the work, and will be responsible for any errors therein that otherwise might have been avoided. He shall promptly inform the Officer in Charge of any errors or discrepancies he may discover in the drawings and specifications, in order that the proper corrections may be made and understood.

10. Access to Work; Incompetent Workmen:

The Officer in Charge is to have access to the work at all times, which is to be entirely under his control. He may require the contractor to dismiss such workmen as he deems to be incompetent or careless.

[fol. 36] 11. Protection of Material and Work:

The contractor shall, before leaving off work, and at all times, carefully and properly protect all materials of every description delivered, both before and after being used on the job, and all work performed by him, and any special protection from weather deemed necessary by the Officer in Charge shall be provided without additional cost to the United States. Partial payments under the contract will not relieve the contractor of responsibility.

12. Liability for Damages:

The contractor will be held responsible for all damages to the buildings under construction whether from fire, high winds, or other causes, during performance and until final completion and acceptance, even though partial payments may have been made under the contract. He shall be held answerable for all damages that may occur to persons, animals, or vehicles from want of proper lighting, watching, boarding or inclosing, and for any accident arising from defective scaffolding or apparatus, or any negligence on the part of himself or his employees.

13. Heating Building:

The contractor shall provide stoves and fuel for heating buildings in cold or wet weather while his work is going forward until it is dry.

14. Water:

The contractor will be furnished water in such quantity as is actually required for his work. Connection to the post water system will be made under the direction of the Officer in Charge, but at the contractor's expense. Such connections, pipe, fixtures, and [fol. 37] fittings will be maintained by the contractor so as not to waste the water and any failure to stop immediately any leakage or other waste, after notification will, in the discretion of the

officer in Charge cause the water to be metered at the contractor's expense and thereafter all water used by him will be charged to him at its cost to the Government.

15. Systematic Work:

The work must be carried on systematically, and it is to be so managed at all times by the contractor as to secure rapid progress, and avoid annoyance and inconvenience.

16. Cleaning away rubbish; work must not be defaced:

The Contractor is to clean away, whenever directed by the Officer in Charge, the dirt and rubbish resulting from his operations, and remove all rubbish at completion of the building; neither he or his employees must deface or damage the building, and the whole is to be delivered over clean and in perfect condition.

17. Assistance:

The contractor shall render assistance to the other mechanics on the work in every way in which his special work can be of service, and such assistance must be given promptly and thoroughly, without additional charge. He and his employees must work in harmony with other contractors on the grounds and in such order and places as may be required by the Officer in Charge.

18. Eight-hour Laws:

(a) The act of Congress approved August 1, 1892, as amended by the act of March 3, 1913, restrict the time to working of mechanics and laborers employed by any contractor or sub-contractor [fol. 38] upon public works to eight hours in any one calendar day, except in case of extraordinary emergency, and provides for fines or imprisonment for violation thereof.

(b) The act of June 19, 1912, makes the same restriction as to hours of labor and provides that the contractor shall be charged a penalty of \$5 for each mechanic or laborer for every calendar day in which he is required or permitted to work more than eight hours, the amount to be withheld under the contract for the benefit of the United States. For further details, and as to exceptions and right of appeal, see said act and blank form for contract. (Q. M. C. Form No. 109.) It has been made the duty of officers and agents of the Government in charge of the work to report any violations of these laws coming under their observation with view of deduction of penalties under the contract and for such action as the Department of Justice may deem advisable to take.

19. Convict Labor Not to be Employed:

In the performance of the work herein specified the contractor shall not, directly or indirectly, employ any person undergoing sentence of imprisonment at hard labor which may have been im-

posed by a court of any State, Territory, or municipality, having criminal jurisdiction, nor permit such employment by any person furnishing him labor, or materials in fulfillment of the agreement.

20. Smoking:

Smoking will not be permitted in the building. The contractor shall provide the workmen with spittoons, which must be kept filled with clean sand.

[fol. 39] 21. Sanitation:

The contractor shall provide and maintain necessary sanitary conveniences for the use of those employed on or about the work, properly, secluded from public observation in such manner and at such points as shall be approved by the Officer in Charge, and their use shall be strictly enforced. The collections in same shall be removed or destroyed when and where, in the opinion of the Officer in Charge, it is advisable. The contractor shall provide sufficient drinking water for all of his employees, but only from such sources as are approved by the Officer in Charge. The contractors must obey and enforce all sanitary and health requirements of the post surgeon.

22. Extras:

No charge for any extra work will be allowed unless the same has been ordered in writing by the Officer in Charge, the price stated in the order, and accepted by the contractor.

23. Inspection and Acceptance, or Rejection, of Work:

The contractor must understand that the materials delivered and labor furnished by him, at any and all times during the progress of the work, and prior to final acceptance of and payment for the same, shall be subject to the inspection of the Officer in Charge or other authorized agent of the Government, with the full right to accept or reject any part thereof; and that he must at his own expense, within a reasonable time, remedy any defective or unsatisfactory materials or work, and that in event of his failure to do so, after notice, the Officer in Charge shall have the full right to have the same done, and to deduct the cost thereof from any money due the contractor. All condemned materials must be at once removed from the reservation.

[fol. 40]

Masons' Material

The following standard requirements for material shall apply to all work of contract, except as distinctly otherwise specified.

24. Sand:

Clean and siliceous, composed of grains of varying sizes up to $\frac{1}{4}$ " mesh screen and shall be free from salt, loam, clay, silt, or other objectionable substance and shall be well screened for mortar.

25. Stone and Gravel:

(a) Broken stone or gravel shall be free from clay, loam, organic matter, slaty or disintegrated stones.

(b) Shall be run of the crusher or of the bank, double screened to following sizes: $\frac{1}{2}$ " to $1\frac{1}{2}$ " for walls, footings and other mass concrete and $\frac{1}{4}$ " to $\frac{3}{4}$ " for reinforced concrete work.

26. Cement:

(a) Shall be Portland cement complying with latest edition of United States Government Specifications for Quality and Tests.

(b) Cement shall be protected from rain and dampness until used. All cement shall be subject to inspection and test in accordance with the requirements of the United States Government Specifications for Portland cement.

27. Cinders and Slag:

(a) Shall be well burned, clean, screened steam boiler cinders free from ashes. Large clinkers shall be broken into small par-[fol. 41] ticles. Gas house or locomotive cinders will not be accepted.

(b) All slag shall be air cooled, seasoned blast furnace slag, screened of dust and free from foreign material. For footings, unreinforced foundations, walls and mass concrete the slag shall be broken or crushed to such size as will pass a $1\frac{1}{2}$ inch mesh, graded uniformly between these limits, and shall weigh not less than 75 lbs. per cubic foot.

Concrete Work

28. Extent of Work:

The concrete work in general will consist of the following:

(a) Head wall of mass concrete for 60" concrete drain pipe of River Power House of mass concrete.

(b) Piers under Ash Skip Hoist Tower of mass concrete—Sheet 104.

(c) Ash Skip Bucket Pit and Sump—Reinforced concrete surfaced inside with 1 inch of cement mortar composed 1:2, and outside with dead oil and American coal tar pitch. Sheet 104.

(d) Permanent trestle bents reinforced concrete—Sheet #106.

(e) Dumping Trestle for Stone & Coke Storage—reinforced concrete—Sheet #112.

(f) Increasing height of two Coke Hoppers—reinforced concrete—Sheets #101 and 111.

(g) Increasing height of limestone Hopper and Bins Sheet #110 of reinforced concrete.

(h) Increasing height of stone and coke dumping pits reinforced concrete Sheet #114.

[fol. 42] 29. General:

(a) The following standard requirements for concrete shall apply to all work of contract, except as distinctly otherwise specified.

(b) Concrete shall not be mixed in any greater quantity than is required for the work in hand. Any excess that may be left over at night, or allowed to stand longer than two hours for concrete, shall be discarded and not rettempered or used in any way.

(c) Existing concrete work to which new will be added shall have dowels let into same and shall be cleaned with a wire brush and given a coat of neat Portland cement wash immediately previous to pouring of concrete thereon.

30. Material:

(a) Concrete mixtures of the following types shall be used for the purposes specified:

(1) Type "A" or mass concrete, unless otherwise specified, shall be composed of one (1) part Portland cement, two (2) parts sand and five (5) parts of 1½ inch machine broken stone or screened gravel. Proportions for mass concrete in which slag is used as a coarse aggregate shall be 1:2:4 and where unscreened run of bank gravel is used, shall be 1:5 (Unscreened run of bank gravel may be used only when obtained from a gravel bank inspected and approved by the Constructing Officer).

(2) Type "B" or reinforced concrete, unless otherwise specified, shall be composed of one (1) part of Portland cement, two (2) parts sand and four (4) parts of ¾-inch machine broken stone or screened gravel. Unscreened run of bank gravel or slag shall not be used in reinforced concrete work.

[fol. 43] 31. Mixing:

(a) A machine mixer shall be used for all concrete, except that where only a small amount is required, the mixing may be done by hand. A competent and experienced foreman must be in direct charge of the mixing and placing of all concrete. Tools sufficient to handle the mixed concrete quickly and efficiently must be provided. Before depositing concrete all forms shall be thoroughly cleaned and wetted, and the bottom of trenches tamped level and firm.

(b) All ingredients shall be thoroughly mixed until they are uniformly distributed throughout the mass, with sufficient clean, pure water added to produce a concrete of proper consistency. Immediately after being mixed the concrete must be conveyed to the desired point and carefully deposited in place in such a manner as to prevent the separation of the mortar and stone, using suitable tampers or other means to insure the removal of voids, air pockets, or honey-

combing. It shall be laid quickly in layers not exceeding 8 inches in thickness, and each layer shall be thoroughly tamped down, but not set, before a succeeding layer is deposited.

(c) When the concrete work is started, the pouring must be carried on continuously, until an entire section is completed, and the greatest care must be exercised to stop the work at such a point as not to weaken it. When resuming the work, the concrete along unfinished edges shall be thoroughly washed, trimmed square and roughened, and a layer of neat cement placed along same before resuming the pouring.

(d) Wherever it is required that the concrete be made waterproof by the addition of a waterproofing compound, the aggregates shall be carefully selected and graded in size and so proportioned that a dense mixture will result. The mixture shall be of puddling consistency, allowing the particles to flow into position without tamping and shall be well spaded against the forms to avoid the formation of pockets.

(e) The component parts of concrete shall be measured in boxes or barrels of a certain capacity, and the same unit of measurement shall be used for each part of the composition. Measurement by wheelbarrow loads or by counting the shovelfuls will not be allowed.

(f) All concrete placed during hot weather must be protected from the rays of the sun or air currents that may tend to cause rapid drying, and should be wetted daily or oftener until thoroughly set.

(g) When the Constructing Officer deems it necessary to place concrete in freezing weather, proper provision shall be made to heat all material and keep concrete above freezing point until it is thoroughly set.

(h) When required, provision for expansion and contraction shall be made by tarred paper and vertical key joints.

32. Finishes:

(a) Concrete surfaces of walls and columns exposed to view on exterior, except where same will be plastered, shall have all form marks removed, projections cut away with a chisel and brushed off with a wire brush.

(b) All holes and voids in walls below grade on the outside shall be completely filled with Portland cement and sand composed 1:1.

(c) Concrete floor finish or top dressing shall be known as Type "B," consisting of cement and sand composed 1:2.

[fol. 45] 33. Forms:

(a) All forms shall be built of well-seasoned, sound, good quality lumber, and except "false work" shall be of new lumber if required. Forms shall be stiff, true and plumb and be well braced in a manner to prevent movement or sag, and sufficiently tight to hold concrete without leakage.

(b) All forms for beams, girders and lintels shall be so designed that at least one side may be removed without disturbing the bottom

portion of the form and its supports. Supporting posts shall rest upon wedges to be loosened prior to removal, to eliminate undue stress in floor slabs.

(c) Forms shall remain in place long enough to allow the concrete to set properly, as shall be determined by the Constructing Officer. In no case shall forms be removed until concrete has sufficient strength to carry its own weight and the loads upon it with safety. In freezing weather special care shall be taken to ascertain that concrete is fully set before forms are removed.

34. Reinforcement:

(a) Reinforcement consisting of square steel rods, railroad iron, wire fabric or expanded metal of adequate section shall be furnished and placed as shown on drawings.

(b) Steel for reinforcement shall be as specified in Par. 37,-- No rerolled material shall be used for reinforcement.

(c) All reinforcement shall be properly protected until used, and when placed, shall be free from dirt, rust, dust or scale, and shall be accurately located and secured against displacement.

[fol. 46]

Excavating and Grading

35. Removals, Excavations & Filling:

(a) Removals.—The contractor shall remove all crushed stone and coke from site of proposed trestle and shall pile same on adjacent stone and coke piles, also all material on site of proposed coal storage track as directed by Constructing Officer.

(b) Tracks (including those of Storehouse #1 Area), existing timber trestles, walks and railings and canopies over coke hoppers shall be raised to new levels or removed as may be required, and if removed, shall be piled as directed by the Constructing Officer.

(c) All work to be raised or removed shall be accomplished without endangering existing adjacent work, and the Contractor shall provide all necessary bracing, shoring and underpinning as may be required to properly execute the work.

(d) Excavation.—Do all necessary excavating or blasting required by drawings, including that required for grade of railway tracks and turnout, maintaining same in good order. Excavations shall be carried to depth shown on drawings or as may be required to give sufficient bearing power for the support of the trestles. Excavations shall include the angle of repose where adjoining natural grade is to be maintained.

(e) Excavated material shall be used as fill and be disposed of as directed by the Constructing Officer.

(f) Filling.—Contractor shall do all filling required by drawings, placing same in a manner acceptable to the Constructing Officer and according to the standard cross section adopted by the Construction Division. Back-fill against all walls and footings and puddle solid.

(g) Fill over ravine not included in this contract.

[fol. 47] (h) Borrow pits for additional earth required for fill will

be designated by the Constructing Officer within $\frac{1}{2}$ mile of proposed fill, but the Contractor shall do necessary excavating and carting. Borrow pits shall be left in such condition that they will readily drain, preventing the collection of stagnant water.

(i) Temporary trestles will be allowed in fills and the Contractor shall use such material as is available from existing trestles to be removed on completion however, no timber will be allowed in the finished fill within three feet of finished surface.

(k) Provide a bed of cinders tamped to a level bed 12 inches in depth under platform at foot of batter boards of Coal Trestle, as shown on Drawing #6561-103.

(1) Ballast.—Provide slag or stone ballast for all track to be laid, ballast to be at least 6 inches thick under ties, and filled solid between ties. Material for ballast shall pass through a two and one-half inch ring and be retained upon a No. 10 screen. Ballast shall contain not less than 25 per cent nor more than 50 per cent of sand. To be placed in a satisfactory manner and be hand tamped.

(m) Drains.—Furnish and lay all tile drains required for track work.

Steel Work

36. Extent of Work:

Steel work will in general consist of the following:

(a) Steel beams and framing over limestone bins, coke hopper, dumping trestles and permanent concrete trestles.

(b) Steel brackets for walk at limestone bins taken down and reset in new position.

[fol. 48] (c) Remove railroad track, stringers, grizzly bars and track supports, walk and brackets where shown, and raise and relay tracks, etc., as indicated on drawings.

(d) Pipe railing on walk at limestone bins.

(e) Required connections, bolts and dowels.

(f) Bumping posts on stub ends of Coal Storage Tracks.

(g) Painting steel work.

37. Steel:

All material not otherwise shown or specified, including steel for reinforcement, shall be acid or basic Open Hearth Steel possessing the chemical and physical properties of Medium and Rivet Steel as required by the most recent Standard Specifications for Structural Steel for buildings, and as adopted by the American Society for Testing Materials.

38. Detailing & Fabrication:

(a) All work shall be detailed in a first class and approved manner, the full strength of main members being developed in all connections and in accordance with the following unit stresses.

(b) The workmanship shall be equal to the best practice in modern

structural works. Shearing shall be done accurately and all portions of the work exposed to view shall be neatly finished.

Compression (Pounds per Square Inch)

Steel Castings	16,000
Cast Iron (in plates or short blocks)	12,000
Axial compression of gross sections of steel columns, for ratio of l/r up to 120	16,000-70 l/r
with a maximum of	14,000
[fol. 49] Axial compression of gross section of cast iron columns	10,000-60 l/r
with maximum length equal to 20 diameters, where l =effective length of number in inches, r =corresponding radius of gyration of section in inches.	

Tension (Pounds per Square Inch Net Section)

Steel Castings	16,000
Rolled steel sections	16,000
Wrought iron	12,000
Cast iron	3,000

Extreme Fibre Stresses—Bending

Rolled steel sections	16,000
Wrought iron	12,000
Steel pins	24,000
Cast iron—compression side	12,000
tension side	2,500

Bearing

Shop driven rivets and pins	24,000
Field driven rivets and turned bolts	20,000

The pressure per lineal inch on expansion rollers shall not exceed 600 d where d is equal to diameter of roller in inches.

Shear

Rolled steel shapes	12,000
Plate girder webs gross section	10,000
Shop driven rivets	12,000
Field driven rivets and turned bolts	10,000
Cast iron brackets	1,500

(c) For bracing and combined stresses due to wind and other loading, the permissible working stresses may be increased 25 per cent provided the section thus found is not less than that required by the dead and live loads alone.

(d) The effective or unsupported length of main compression

members shall not exceed 120 times, and for secondary members 200 [fol. 50] times, the least radius of gyration.

(e) In proportioning tension members, net section must be used. Rivet holes deducted must be taken $\frac{1}{8}$ inch larger than the nominal size of rivets.

(f) Members subject to the action of both axial and bending stresses shall be proportioned so that the greatest fibre stress will not exceed the allowed limits in that member.

(g) Members subject to alternate stresses of tension and compression shall be proportioned for the stress giving the largest section, but their connections shall be proportioned for the sum of the stresses.

(h) Rolled beams and channels, and built-up members used as beams and girders shall be proportioned by the moment of inertia of their gross sections.

(i) Web stiffeners shall have a close bearing against the flange angles. Those over the end bearing or forming the connection between girder and column shall be on fillers. Intermediate stiffeners may be on fillers or crimped over the flange angles.

(k) Web plates of girders must be spliced at all points by a plate on each side of web, capable of transmitting the full stress through splice rivets.

(l) The flange plates of all girders shall be limited in width so as not to extend more than 6 inches beyond the outer line of rivets connecting them to the angles, or 8 times the thickness of the thinnest plate.

(m) The lateral unsupported length of beams and girders shall not exceed 40 times the width of the compression flange. When the unsupported length (1 in inches) exceeds 10 times the width (b in inches) of the compression flange, the stress per square inch in the compression flange shall not exceed 16,000-200 $1/b$ if the cover [fol. 51] consists of flat plates or 16,000-150 $1/b$ if cover consists of a channel section.

(n) Adjustable members in any part of structures shall preferably be avoided.

(o) Sections shall preferably be made symmetrical.

(p) Abutting joint in compression members faced for bearing shall be spliced sufficiently to hold the connecting members accurately in place. All other joints in riveted work, whether in tension or compression, shall be fully spliced.

(r) Lateral, longitudinal and transverse bracing in all structures shall preferably be composed of rigid members, and shall be designed to be sufficient to withstand wind and other lateral forces when building is in process of erection as well as after completion.

(s) When two or more rolled beams are used to form a girder, they shall be connected by bolts as separators at intervals of not more than 5 feet. All beams having a depth of 12 inches and more shall have at least two bolts to each separator.

(t) The minimum distance between centers of rivet holes shall be three diameters of the rivet; but the distance shall preferably be not less than 3 inches for $7/8$ -inch rivets, $2\frac{1}{2}$ inches for $3/4$ -

inch rivets, 2 inches for $\frac{5}{8}$ -inch rivets, and $1\frac{3}{4}$ -inch for $\frac{1}{2}$ -inch rivets. The maximum pitch in the line of the stress for members composed of plates and shapes will be 6 inches for $\frac{7}{8}$ -inch rivets, 6 inches for $\frac{3}{4}$ -inch rivets, $4\frac{1}{2}$ inches for $\frac{5}{8}$ -inch rivets and 4 inches for $\frac{1}{2}$ -inch rivets.

(u) For angles in built sections with two gauge lines, with rivets staggered, the maximum pitch in each line shall be twice as great as given above. Where two or more plates are in contact, rivets not more than 12 inches apart in either direction shall be used to hold the plates together.

[fol. 52] (v) The minimum distance from the center of any rivet hole to a sheared edge shall be $1\frac{1}{2}$ inches for $\frac{7}{8}$ -inch rivets, $1\frac{1}{4}$ inches for $\frac{3}{4}$ -inch rivets, $1\frac{1}{8}$ inches for $\frac{5}{8}$ -inch rivets, and 1 inch for $\frac{1}{2}$ -inch rivets; and to a rolled edge, $1\frac{1}{4}$, $1\frac{1}{8}$, 1 and $\frac{7}{8}$ inches respectively.

(w) The maximum distance from any edge shall be eight times the thickness of the plate.

(x) The pitch of rivets at the ends of built compression members shall not exceed four diameters of the rivets for a length equal to two times the maximum width of the member.

(y) The open sides of compression members shall be provided with lattice bars, having tie plates at each end and at intermediate points where the lattice is interrupted. The tie plates shall be as near to ends as practicable. In main members carrying calculated stresses, the end tie plates shall have a length not less than the distance between the lines of rivets connecting them to the flanges, and intermediate ones not less than half this distance. Their thickness shall not be less than $1/50$ of the same distance.

(aa) The size of rivets shall be as called for on the drawings. Rivets shall be driven by pressure tools wherever possible. Pneumatic hammers shall be used in preference to hand driving. Rivets shall look neat and finished with heads of approved shape, full and of equal size. They shall be centered on the shank and shall grip the assembled pieces firmly.

(bb) Riveted members shall have all parts well pinned up and firmly drawn together with bolts before riveting is commenced. Contact surfaces shall be painted. Abutting joints shall be cut or dressed true and straight and fitted closely together. In compression joints depending on contact bearing, the surfaces shall be [fol. 53] truly faced, so as to have even bearing after they are riveted up complete and when perfectly aligned. The several pieces forming one built member shall be straight and shall fit closely together, and finished members shall be free from twists, bends or

(cc) Expansion bed plates shall be planed true and smooth. The cut of the planing tool shall correspond with the direction of expansion.

(dd) Steel, except in minor details, which has been partially heated, shall be properly annealed. Welds in steel will not be allowed. All steel castings shall be annealed.

39. Shop Drawings:

(a) The Contractor, before fabricating any material, shall submit for approval two sets of shop drawings of Structural and Miscellaneous Iron and Steel Work, Apparatus or Device required. Approval, or instructions for any changes in these drawings will be secured from the Washington office by the Constructing Officer. Two sets of the finally approved drawings are to be furnished for the Government files in Washington, and one for the Constructing Officer.

(b) Setting or erection drawings shall be furnished, on which the general dimensions of the building shall be shown, including the position and thickness of the various bearing walls, piers, etc., on which steel is placed. These erection plans give the size, weight, length, elevation, position and erection mark of all material. All field connections for purlins and girts shall be bolted.

(c) In addition to the erection drawings, size and section or detail sheets (except details of unfabricated beam work), shall be furnished, on which all material shall be listed in detail. An index sheet shall [fol. 54] be supplied, on which shall be noted the number of the drawing on which the detail of each member may be found, referring to the member by its erection mark.

(d) All drawings shall be of uniform size, properly tilted and numbered to facilitate their easy identification. The system of erection-making shall be simple and easily interpreted and, when practicable, same marks as shown on contract drawings shall be used on shop drawings.

(e) No material shall be fabricated before the approval of the shop drawings affecting same. This approval shall not be construed as a complete check, but will only indicate that the general method of construction and detailing is satisfactory. Approval of drawings shall not relieve the Contractor of the responsibility for any error which may exist, and the contractor will be responsible for the design of adequate connections and details. The Contractor shall furnish all materials, devises, apparatus, etc., of proper size, quantity and quality to efficiently carry out requirements of drawings and specifications.

40. Erection:

(a) The specifications relating to manufacture and fabrication will apply to erection, and all work shall be erected plumb, square and true to lines and levels in strict accordance with the structural requirements of the building.

(b) Contractor shall provide all machinery, apparatus and staging required for the erection of steel work in a thoroughly safe and efficient manner. He shall install, maintain and remove without injury to other work, such temporary bracing, scaffolding, etc., as may be necessary or required. Care shall be taken that no part of the structure is overloaded during construction. The steel erector [fol. 55] shall furnish mason with instructions or templates for setting anchor bolts and bearing plates.

(c) The Contractor shall arrange deliveries of material to facilitate the rapid and continuous progress of the operation, but the site adjacent to same shall not be used for the storage of material unless absolutely necessary, and then only under special permission of the Constructing Officer and local authorities having jurisdiction.

(d) Particular care shall be taken to protect all material from injury of any kind either in transportation or erection. Material so damaged must be replaced by perfect material or repaired in a manner approved by the Constructing Officer.

(e) The use of drift pins will be allowed only to bring together the several parts, and they must not be driven with such force as to distort or injure the material. Material that has been distorted by drifting will not be accepted.

(f) Provide and install all hangers, brackets, bracing, struts and extra pieces as shown or required to complete the entire work in a first class manner.

(g) Provide necessary tap screws and do all drilling and tapping of steel required by all trades.

41. Workmanship:

(a) All workmanship shall be first class and subject to the approval of the Constructing Officer. Only men experienced in this class of work shall be employed on same. All material shall be fabricated as shown on the approved shop drawings and in strict accordance with the best practice in work of this kind. Connections and fittings shall be so made and placed that the various parts will fit accurately and permit of erection without undue labor, drilling, fitting or cutting.

[fol. 56] (b) The Contractor shall provide and install in first class manner all necessary filler plates, washers, bolts, rivets, etc.

(c) All pieces must be clearly marked according to some definite system to avoid confusion of parts and to secure perfect fit in erection.

42. Rivets & Bolts:

(a) Unless otherwise specified, either rivets or bolts may be used in field work in accordance with the following conditions:

(b) Rivet holes must be accurately spaced and rivets when driven must completely fill the same, having full heads concentric with the holes and be machine driven whenever practicable, the machines being capable of retaining the applied pressure after the upsetting is completed. The rivet heads must be full and neatly finished of approved hemispherical shape and in full contact with the surface, or be countersunk, flattened or chipped as required, of a uniform size for the whole diameter of the rivet throughout the work, and must thoroughly bind together connected pieces. All loose or otherwise imperfect rivets must be cut out and replaced, and no tightening of rivets by caulking or recupping will be permitted. The use of rivets in tension shall be avoided.

(c) If any hole is to be enlarged to admit the rivet, it must be reamed, and a larger bolt or rivet provided.

(d) The holes for bolts shall be punched or drilled the neat size of the bolt, to provide a driving fit for same. Before encasing bolted or riveted work in concrete, opportunity must be granted the inspector to examine same. Any loose or imperfect rivets shall be removed and loose bolts well tightened. All bolts remaining permanently in the structure to be dipped in red lead paint before installation. Bolts not encased in concrete shall have ends split [fol. 57] to prevent nuts from working loose.

(e) When built-up members are assembled, the holes in the various pieces shall match and be strictly in line, any slight variation being corrected reaming and using larger bolts or rivets. During riveting the several pieces shall be closely bolted together and when finished shall be in close contact throughout.

43. Railway Tracks:

(a) Contractor shall remove, raise and lay all track and turn-outs and bumpers indicated as new, raised or relaid upon drawings.

(b) The work shall include the spacing of ties, placing of ballast and tile drains, (Pars. 51, 35 "l" & "m"), and all work necessary to place tracts in perfect working condition.

(c) Such of trackage as is removed and is in good condition shall be relaid, and the Government will furnish all additional rails, angle bars track bolts, tie plates, spikes, drain tile, etc. Contractor shall furnish all bolts required for trestles, ties, stringers.

(d) Track shall be standard gauge, having steel rails of 67½ lb. section A.S.C.E. with standard rail clips and bolts.

44. Bumping Posts:

Furnish and install "Ellis," "Gibraltar" or equal bumping posts or ends of the two stub coal storage tracks.

45. Pipe Railings:

Where shown furnish and erect railings of 1½ inch nominal diameter galvanized wrought iron pipe with standard connections, posts, rails and flanged base as shown.

[fol. 58] Painting of Iron & Steel Work

46. Painting:

(a) All structural steel and iron work shall be given the number of shop and field coats of paint, as hereinafter specified.

(b) The materials specified for use in paint shall be pure, unadulterated and of the best quality of the respective kinds mentioned. The pigments must in all cases be finely ground, and in prepared paints shall be ground with the oil.

(c) If prepared paints are used, they shall be delivered at the

work in the original packages, or containers, and shall be used without adulteration or addition of other material.

(d) The vehicle for all paint shall be raw or boiled pure linseed oil, or an approved combination of the two. Linseed oil shall be well aged and settled.

(e) Mixing Paint—Paint shall be mixed in the following proportions, dryers being added to the linseed oil only in sufficient quantities to cause paint to dry with 24 hours' time in dry warm air. Only pure linseed oil of the quality above specified shall be used and shall be thoroughly mixed with finely ground pigment. No adulterants of any kind shall be used and all paint shall be subject to test and approval by the Constructing Officer. No benzine, turpentine, etc., shall be used as driers or for thinning paint, linseed oil being used exclusively.

(f) For the following kinds of paint to each gallon of linseed oil shall be added the quantity of pigment specified:

Red lead paint—20 pounds of Red Lead (lead tetroxide).

Iron oxide paint—8 pounds of Iron Oxide (iron oxide).

[fol. 59] (g) Method of Applying Paint—All painting for steel and iron work shall be done in an approved and first class manner by mechanics skilled in this class of work. The paint shall be thoroughly worked into all cracks and corners and well brushed out over all surfaces.

(h) All painting shall be done on dry surface and no paint shall be applied during exceptionally damp weather or when the temperature is below freezing point.

47. Shop Painting:

(a) Before leaving mill or shop, all steel and iron work shall be thoroughly cleaned of mill scale, dirt and rust, by use of steel scrapers, wire brushes or sand blast where necessary, and cleaned of oil or grease with benzine.

(b) All steel or iron work, except cast iron work, and metal for reinforcement of concrete, after being so cleaned, shall be given one coat of Red Lead Paint.

(c) Surface coming in contact after assembling shall receive one heavy coat of red paint and parts shall be assembled while paint is still wet. Interior surfaces of box or similar sections, inaccessible after assembling or erection, shall receive two coats of red lead paint. All bolts used in the erection of the steel, which are to remain permanently in the structure shall be dipped in red lead paint before being placed in position.

(d) All pins and bored pin holes and other planed or threaded surfaces shall be coated with white lead and tallow before leaving the shop, particular care shall be taken to keep these surfaces free from rust, and from injury due to abrasion or other causes.

48. Field Painting:

(a) After erection, or at any time before, when required, all steel and iron work shall be cleaned of mud, dirt, grease or other

[fol. 60] foreign matter, and all abrasions or defects in shop coat shall be scraped or thoroughly cleaned and repainted with same kind of paint as used for shop coat.

(b) Cast iron shall be delivered at the site unpainted and after being inspected and approved shall be thoroughly cleaned and painted one coat of red lead paint.

(c) Nothing herein contained shall be construed to requiring the painting of metal used for the reinforcement of concrete.

(d) In addition to shop coats, all steel and iron work shall be given two field coats of white lead or zinc paint of colors directed. These field coats shall be composed as follows: To each gallon of linseed oil shall be added the following pigment:

White lead paint—22 pounds white lead (Dutch process).

Zinc white paint—19 pounds Zinc white (Zinc oxide).

Timber Work

49. Extent of Work:

Work shall consist generally of the following and the Contractor shall use in the new construction timber available from elevated structures and existing tracks to be removed:

- (a) Trestles—temporary and permanent.
- (b) Railway stringers and ties.
- (c) Walks.
- (d) Batter boards and platform—Coal Trestle.
- (e) Removing and resetting canopies over Coke and Stone Hoppers, providing missing parts.

[fol. 61] 50. Trestles:

(a) Construct all permanent and temporary trestles as shown on drawings, and shall provide mud sills wherever, in the opinion of the Constructing Officer, the nature of the ground so requires them.

(b) Contractor shall furnish and apply all bolts and drift pins required, doing all necessary boring and all painting with white lead required.

(c) Timber of each trestle bent, mud sills, sills, posts, caps and braces and all stringers shall be properly marked for assembling and identification.

51. Stringers and Ties:

Furnish of required sizes or re-saw from existing timber furnished for the purpose, sound stringers and ties for new railway work. Frame and bore as required and securely bolt up as directed.

52. Coal Trestle Platform, etc.:

Construct the platform and batter boards to track of Coal Trestle as shown on drawing No. 6561-103; using boards from old siding of trestles. Platform shall be of 1. 1. yellow pine planking spiked to 6 x 6 inch sills embedded in cinder fill.

53. Walks and Wood Guard Rail:

Construct plank walks and guard-rails of yellow pine timber along dumping trestle (Sheet No. 112), and where shown. Walk shall be substantially constructed and be well spiked. Hand rails shall be hand smoothed.

54. Canopies, etc.:

Raise existing canopies of Coke Hopper and build flooring on joists over future hopper. Contractor shall furnish all missing parts necessary to complete the installation and put same in perfect working order.

[fol. 62] Ash Skip Hoist at River Power-house

55. Scope of Work:

The work covered by these specifications consists in furnishing all labor and material necessary to install an ash skip hoist complete as shown on drawing 6561-104 and as hereinafter described.

56. Ash Bunker and Gates:

Bunker shall have a capacity of 6,000 cubic feet. It shall be rectangular in shape and constructed of $\frac{1}{4}$ inch steel plate. The bottom shall be pyramidal in shape and the sides on an angle of 45 degrees. Outlet shall be equipped with a cast iron ash gate of the Undercut Duplex type, having a 21 inch square body and operated from the ground by means of a wrought iron lever, bolted to one of the gate jaws, complete with necessary pulleys and wire rope pull with handle. The top bunker shall be constructed of No. 12 steel plate, sides to be on an angle of 45 degrees with a horizontal top. There shall be two openings, each one covered by a hinged lid of No. 10 steel plate and of a size suitable to receive ashes from 40 cubic foot bucket. The hinged lids shall be constructed so that they will be opened automatically by the skip buckets when they ascend and close when they descend. Covers shall be fitted with angle stiffeners. The supporting structure shall consist of four columns of sufficient size for the purpose intended. They shall be braced in all directions and designed according to the American Bridge Specifications. Bunker shall be protected on the inside (side and bottom) by a 2-inch lining of cement plaster, same to be composed of 1 cubic [fol. 63] foot cement, $\frac{1}{2}$ cubic foot hydrated lime, 3 cubic feet sand and $\frac{1}{4}$ pound hair. This shall be laid on reinforcement made of 1 inch mesh No. 18 gauge galvanized steel wire netting 48 inches wide. The reinforcement will be securely fastened to the bunker steel by means of bolts spaced every 2 feet in all directions. Suitable steel footwalk and hand rail shall be installed around top of bunker. Steel ladder shall be provided to reach the top.

57. Paint:

All steel shall be given one coat of brown oxide and one coat of black graphite.

58. Skip Buckets:

Two skip buckets shall be furnished. They will be rectangular in section and constructed of 3/16-inch steel plate and angles properly stiffened. They shall be mounted on square journaled shafts and each one fitted with four cast iron, machined, single flanged guide wheels, same to be fitted with grease cups. The hoisting bale shall be constructed of heavy flats or channel irons properly stiffened and attached to the side or bottom of the bucket. The upper ends shall be connected by a cross beam to which the hoisting rope is fastened. The capacity of each bucket shall be 40 cubic feet.

59. Loading Hopper:

Two loading hoppers shall be furnished. They shall be constructed of 1/4-inch steel plate stiffened with angles and each one shall have a capacity of 120 cubic feet. Attached to each loading hopper shall be a chute made of 1/2-inch steel plate. At the end of [fol. 64] this chute shall be a counter-weighted undercut gate which will be automatically opened and closed when the skip bucket descends and ascends.

60. Rope and Fittings:

The hoisting rope shall be the best crucible steel wire rope with hamp core and of proper diameter to accommodate the working load with ample factor of safety. This will also apply to the counter-weight rope. All necessary thimbles and rope clamps of approved type, for securing rope to apparatus, shall be furnished. All sheaves and blocks shall be of the best close grained grey iron properly turned, bronze bushed and fitted with compression grease cups. The pitch diameter of same shall be at least 30 times the diameter of the rope used.

61. Counterweight and Guides:

Two cast iron sectional counterweights shall be furnished, one for each skip bucket. They shall travel on guides consisting of angles and rigidly braced to the bunker structure by means of yokes. The weight of the counterweight shall be so proportioned that the duty of the hoisting motor will be approximately constant, whether hoisting a full bucket or lowering an empty one. A hand rail shall be installed around the counterweight guides, at the ground level. Safety appliances of approved design shall be installed at the top and bottom of counterweights to stop the machines in case the counterweights travel past their designed stopping places.

62. Skip Guides:

Skip guides shall consist of a pair of steel channels for each bucket, [fol. 65] same to be securely laced together to hold them true to gauge and braced from the bunker columns by a steel bent. Above the bunker they shall support the head sheaves or blocks. At the top of skip guides a switch shall be provided to break the electric circuit if bucket travels beyond its designed stopping point, or in lieu of this a traveling cam operated in conjunction with the main drive will be acceptable.

63. Hoist House:

One hoist house shall be furnished. It shall be of structural steel frame with No. 22 U. S. S. gauge corrugated steel sides and roof. It shall be of a size sufficient to house two hoisting machines. Ample windows and doors shall be provided. Floor shall be of cement built by others.

64. Hoist and Motor:

Two hoisting machines shall be furnished; they shall be installed in the hoist house together with all necessary control panels and switches. Motors shall be wound for 440 volts, 3 phase, 60 cycle and of sufficient size for the use intended. Each one shall be capable of handling ashes of approximately 15 tons per hour on a 100 foot lift. Motor may be directly connected to the hoisting drum by a steel worm and bronze rim wheel, same to run in oil, or any other suitable design approved by the Constructing Officer. All bearings shall be bronze bushed and fitted with compression grease cups. The entire operation of the machine shall be automatic, from the time the bucket starts to ascend until the ashes in the loading hopper have been exhausted and delivered to the bunker, and bucket has returned to the loading position at which point the power shall be automatically cut off. Operation shall be started by means of a push-button switch.

[fol. 66] 65. Drawing:

Manufacturers will submit with their proposals working drawings showing size of pit necessary to accommodate loading hoppers, location and size of foundation bolts and all other information necessary for the complete installation of the system.

66. Test:

At the completion of the work and before acceptance, the entire apparatus shall be subjected to an 8-hour operating test, during which period the equipment shall be operated continuously at full capacity. Machine shall operate to the satisfaction of the Constructing Officer and without undue heating of any part of motor or hoist. The Contractor shall furnish all labor necessary to conduct test. Current for the operation of the motor will be furnished by the Government.

67. Concrete Work:

Specifications for pits, foundation and all other concrete work are covered in Par. 28 of the Specification.

68. Ejector:

A brass steam ejector with all necessary valves and fittings shall be installed in the ash skip bucket pit at the River Power House. It shall have a capacity of not less than 500 gallons of water per hour against a 35 foot lift and 24 inch suction operating with steam at not less than 60 pounds pressure. A strainer shall be installed in the suction connection of the ejector and located $1\frac{1}{2}$ inches from the bottom of sump.

R. C. Marshall, Jr., Brig. Gen. U. S. A., Chief of Construction Division.

Washington, D. C., April 14, 1920.

[fol. 67]

II. HISTORY OF PROCEEDINGS

On June 16, 1922, the defendant filed a motion to make the petition more definite and certain.

On June 26, 1922, the court filed an order overruling defendant's motion to make the petition more definite, and gave the defendant thirty (30) days in which to plead as it may be advised.

On July 15, 1922, the defendant filed a special demurrer.

On October 16, 1922, the demurrer was submitted without argument.

On October 30, 1922, the court entered the following order:

Order

This cause having been submitted upon the defendant's demurrer to certain claims presented in the petition, the Court, being of the opinion that the questions presented by demurrer can be better determined when the facts are developed, does overrule the demurrer, with leave to the defendant to present the questions when the case comes on to be heard upon the merits.

III. ARGUMENT AND SUBMISSION

On March 4, 1924, this case was argued and submitted on merits by Mr. Edmund D. Adeock, for the plaintiff, and by Mr. George H. Foster, for the defendant.

[fol. 68] **IV. Findings of Fact, Conclusion of Law, and Opinion of the Court by Hay, J.**—Entered April 28, 1924

This case having been heard by the Court of Claims, the court, upon the evidence, makes the following

FINDINGS OF FACT

I

The plaintiff is a corporation organized and existing under the laws of the State of Illinois having, its principal place of business in the city of Chicago, State of Illinois. On May 28, 1920, under the name of Union Insulating Company, which name was afterwards changed to Union Insulating & Construction Company, the plaintiff entered into a contract with the United States whereby the plaintiff agreed to do certain construction work at nitrate plant No. 2 at Muscle Shoals, Alabama. A copy of said contract, marked "Exhibit A," is attached to the petition and is made a part hereof by reference.

II

The contract provided that the United States would furnish at the nitrate plant all construction materials except those to be furnished by the plaintiff, which were specified in the contract, the plaintiff undertaking to perform all necessary labor required in transporting such materials to the proper place for use in construction, and the United States agreed at all times to furnish the necessary right of way for ingress and egress to the place of storage of such material and the place of ultimate use in construction.

The right of way furnished by the United States consisted of railroad tracks running from the site of the work to the storage yards. These tracks were used by others, and were not in good condition when the plaintiff submitted its bid, nor were they in any worse condition when it began work under the contract. The United States did not keep the tracks in good condition during the period of the performance of the contract, but turned them over to the plaintiff for its use together with the necessary rolling stock. The plaintiff expended the sum of \$705.50 for labor in repairing railroad [fol. 69] tracks, and \$700.66 for making repairs to equipment damaged by reason of the defective tracks; it also expended the further sum of \$1,653.49 for labor in connection with derailments.

III

Drawing No. 109 made a part of the contract provided for a wooden railroad trestle to be built with eighty-six bents, each bent to be twelve feet from center to center. After the contract was made the defendant changed its plans for said trestle, requiring the bents to be eleven feet from center to center instead of twelve feet,

making necessary the construction also of twenty additional bents. There was on hand at the said plant at the time the bids were invited new lumber sufficient and which could have been made adaptable for the construction of the said trestle with bents twelve feet from center to center. The defendant upon changing the plan for the building of the trestle, required the plaintiff to use old lumber, and to salvage the same from a trestle which the contract required the plaintiff to remove, and which was at or near the location of the new trestle. The change of place made it necessary to handle additional lumber amounting to 34,012 more lumber feet than would have been required under the plan specified in the contract. The cost of handling this additional lumber was \$1,870.66. One hundred sixty-nine thousand seven hundred and sixty-four feet of old lumber were actually used in this construction. The extra cost of handling old lumber instead of new lumber and working the same into the wooden trestle was the sum of \$5,092.92.

The plaintiff claims twenty per cent of the aforesaid two sums to cover liability insurance, overhead, and profit, making a total of \$8,356.30 which is claimed by the plaintiff to be the extra cost of constructing the said trestle which it was obliged to incur to meet the changes in the plan. The contract provides that: "No charge for any extra work will be allowed unless the same has been ordered in writing by the officer in charge, the price stated in the order, and accepted by the contractor." The work on the trestle was not ordered in writing by the officer in charge, and hence no price was stated nor accepted by the contractor. The contract also provided: "That all material obtained from existing work may, if same is in the opinion of the constructing officer sound and of suitable character, be used in proposed work; but such salvaged material and all other material furnished by the Government shall be adapted to the requirements of the work by the contractor." The lumber used in building the said trestle was adapted to the requirements of the work, and was at or near the site of the trestle, while the new lumber was stored more than a mile away.

IV

The plaintiff made its bid for the work on May 5, 1920, and the contract was entered into on May 28, 1920. At the time the plaintiff submitted its bid it had a quotation for Portland cement required in the construction work at \$2.80 per barrel, making the total cost of cement as of May 5, 1920, according to the number of barrels [fol. 70] required, \$10,950.80. By the time the contract was executed the quotation on cement, \$2.80 per barrel, was withdrawn and the plaintiff had to pay \$3.93 per barrel for cement, or \$15,370.23 for the amount of cement used in the work, a difference of \$4,419.43. The price of cement was changing at the time the bid was made, and quotations were subject to change at any time, and this the plaintiff knew when it made its bid.

V

The contract provided that the plaintiff should furnish all labor, ash skip hoists, cement, 20 by 80 inch I beams and necessary connections required to construct and finish complete all work as listed under Class B of "Description of work"; the United States to furnish at its present location on the reservation at United States nitrate plant No. 2, all other construction materials. A list of materials to be furnished by the Government was contained in a schedule which was made a part of the contract. Said schedule is attached to the petition, marked "Exhibit B," and is made a part hereof by reference. Said schedule further provided that the contractor should furnish all labor and all material except that listed to be furnished by the Government. Coal was not one of the materials listed to be furnished by the Government. There was at nitrate plant No. 2 and on the Government reservations a large amount of coal sufficient for the construction work. The plaintiff used some of this Government coal, but was prevented by the officer in command of the reservation from using it as soon as he was acquainted with the fact that the plaintiff was using it. The plaintiff was required to replace the coal which it had used. The plaintiff used 820.401 tons of coal in and about the construction work in the performance of its contract, which coal cost the plaintiff the sum of \$7,807.60. The contract provided that the plaintiff could use any or all of certain equipment in its construction work, said equipment consisting of locomotives, steam shovel, concrete mixers, and so forth, but it was expressly provided that the plaintiff should provide all fuel and men to operate the same. The plaintiff used this equipment. The plaintiff claimed the right to use Government coal, but the officer in charge decided against this claim.

VI

It was provided in the contract that the plaintiff should be furnished with materials to aid in the work. Some of these materials were to go in the work, while others were loaned for use and were to be returned to the United States. The materials to go into the construction were issued to plaintiff on "property transfer," and those to be returned were issued on a "property loan."

At the conclusion of the work it was found that certain materials issued on "property loan" were not returned and from a payment made on June 7, 1921, the Government withheld \$1,617.40 to cover the property not returned or accounted for. A list of this material was submitted to the plaintiff. This list was carefully checked by [fol. 71] the Government; the plaintiff insisted that it had returned all materials, or that they had been used up in the work. Subsequently this list was revised by the Government and a check was sent to the plaintiff for \$123.72, making the amount withheld \$1,493.68.

VII

The contract provided that the work should be commenced on June 10, 1920. By June 10 the plaintiff had its executive and office force at the plant. The plaintiff was able to begin work on June 13. The delay resulted from the inability to get material issued to the plaintiff. The actual amount expended for salary and services to the persons kept waiting was the sum of \$360. No complaint and no protest was made by the plaintiff at the time, and no claim was filed by it until March 14, 1921.

VIII

In making a certain filling which was necessary to be made and because of the elevation it was ascertained that a portion of the railroad track leading to the raw material storage yard would be covered. In order to prevent this it was necessary to make a change in the plans, and while estimates were being made for this change the work at this place was stopped from August 19, 1920, to September 7, 1920. The estimate was made by the plaintiff for the track change. A supplemental contract dated September 7, 1920, was entered into by the plaintiff with the defendant to cover the extra work made necessary by the change, and the plaintiff was paid the sum of \$2,515.54 under the terms of the supplemental contract. At that time the plaintiff made no claim for delay, but on March 14, 1921, made a claim for five days' delay, and placed the damages incurred by it by reason of said delay at \$1,550, the said amount being made up of superintendents', engineers', timekeepers', stenographers', accountants', clerks', and foremen's salaries at \$310 per day. Work went on on other portions of the work during these five days, and work was done during the time by the persons whose salaries are estimated from above.

IX

Drawing III, attached to the contract, indicated that eighty cubic yards of concrete were required for each of the two coke hoppers. In order to construct the hoppers as planned an additional amount for the two hoppers was required, equaling 56.6 cubic yards. Therefore the plaintiff was directed by the constructing quartermaster to cease work on the hoppers until an estimate of cost could be made and approved for this additional yardage of concrete. The work on the hoppers was stopped on October 12, 1920; the estimate for the additional yardage was approved on November 11, 1920. After the estimate was approved the work on the hoppers proceeded. Work proceeded on other parts of the work during this time, and November 11, 1920, a supplemental contract was entered into by the [fol. 72] plaintiff with the defendant providing for payment for this extra work on the hoppers, and the sum of \$1,180 was paid the plaintiff under the terms of that contract. No claim for delay was made by the plaintiff at that time, but on March 14, 1921, plaintiff

made claim for five days' delay in completion of the work due to the fact that it had to change to other work than the work on the hoppers. It claims that the damages incurred by it amounted to \$1,550, made up of salaries as set out in Finding VIII.

X

The contract required plaintiff to make an earth fill for the railroad tracks at the river power house west of the ravine on said reservation United States nitrate plant No. 2, and the amount of work was described on the plan and in the specifications. In order to make this fill for the tracks it was necessary to use a large quantity of material in addition to that shown on the plan and in the specifications. The constructing quartermaster of the defendant required the contractor to prepare a plat and profile plan showing the tracks and earth supporting same in its original condition, and also a profile showing the track at its new elevation, with the proper cross-sections, calculated to determine the amount of yardage necessary. This drawing was prepared and submitted to the constructing quartermaster, and said officer determined to adopt the plan prepared by plaintiff and the plaintiff was directed by the constructing quartermaster to prepare an estimate showing the additional money required to make the fill and also showing the yardage necessary in excess of that described in the original plans and specifications. Work on this fill was suspended from October 28, 1920, to November 26, 1920. A change in the arrangement of the work was necessary, but there was no loss of time on the work. On November 26, 1920, a supplemental contract was entered into by the plaintiff with the defendant for the extra work on this fill, and under the terms of that contract the plaintiff was paid the sum of \$4,590.24 for said work. No claim for delay or for efficiency loss was at that time made by the plaintiff, but on March 14, 1921, plaintiff made claim for efficiency loss, which it placed at the sum of \$1,798, based upon the salaries as set out in Findings VIII at \$310 per day.

XI

Extensions of time were agreed upon in writing between the parties; and the plaintiff has been paid the entire amount stipulated in the contract except the sum of \$1,493.68 retained as value of material not accounted for and set out in Finding VI.

At the time of the final payment to the plaintiff the plaintiff had on file in the War Department the claims which are the subject of this suit. The final payment was made with the understanding that the plaintiff did not surrender its rights to bring suit for the claims aforesaid.

CONCLUSION OF LAW

Upon the foregoing findings of fact the court decides as a conclusion of law that the plaintiff is not entitled to recover, and that

the petition be, and the same is hereby dismissed. Judgment is rendered against the plaintiff for the cost of printing the record in this cause, the amount thereof to be entered by clerk and collected by him according to law.

OPINION

HAY, Judge, delivered the opinion of the Court:

This is a suit brought by the plaintiff against the United States to recover the gross sum of \$30,597.73. This sum is made up of nine separate claims growing out of a contract entered into by the plaintiff with the United States providing for certain construction work at nitrate plant No. 2, Muscle Shoals, Alabama.

The plaintiff performed the work undertaken by it, and was paid the amount stipulated in the contract. During the progress of the work certain changes were made in the work, and controversies arose between the plaintiff and the officer in charge of the work. At the termination of the work the claims set out in the findings were filed in the War Department and were pending at the time of final payment. As these claims are separate and distinct from each other it will be best to take up each claim separately.

The first claim is for the sum \$3,059.65, based upon the alleged failure of the United States to maintain the right of way which the defendant was to provide for ingress and egress to the place of storage of the materials to be used on the work to be the place of ultimate use in construction. The contract provided: "The U. S. of America to furnish at its present location on the reservation at U. S. Nitrate Plant No. 2, all other construction materials, the contractor to perform all necessary labor required in transporting such materials to the proper place for use in construction, the U. S. of America at all times to furnish the necessary right of way for ingress or egress to the place of present storage of such materials and the place of ultimate use in construction."

The right of way which the United States furnished to the plaintiff consisted of railroad tracks running from the side of the work to the storage yards. During the progress of the work the plaintiff, in order to keep the tracks in proper condition for the transportation of materials, was obliged to expend the sum of \$705.50 for labor in repairing railroad tracks and \$700.66 for making repairs to equipment damaged by reason of the defective tracks; and it also expended the further sum of \$1,653.49 for labor in connection with derailments. When the plaintiff submitted its bids its representative was on the site of the work and saw what the condition of the right of way was.

There is nothing in the contract which obligated the Government to maintain the tracks. It is not denied that the right of way was furnished. An agreement to furnish a right of way does not carry with it the obligation to maintain it; and there was no breach of contract on the part of the Government, and consequently the plaintiff can not recover on this claim.

The second claim is for alleged extra work in the construction of wood trestle due to change in size and number of bents, and the direction to use old and salvaged lumber. This claim amounts to \$8,356.30, and is avowedly a claim for extra work. The facts are fully set forth in Finding III. As to extra work the contract pro-[fol. 74] vides as follows: "No charge for any extra work will be allowed unless the same has been ordered in writing by the officer in charge, the price stated in the order, and accepted by the contractor." This extra work, if it was extra work, was not ordered in writing by the officer in charge. In order to recover for extra work the terms of the contract must be complied with.

The next claim is for extra cost of cement. This claim is based upon the idea that because the price of cement went up between the time of submitting the bid and the time of signing of the contract, the United States is responsible and must make good to the plaintiff the rise in price. The contract was signed by the plaintiff twenty-three days after the bid was submitted. The plaintiff made no complaint as to the delay, and moreover the plaintiff knew when it submitted its bid that the price of cement was fluctuating. With full knowledge of this fact the plaintiff can not be heard to complain of the cost of cement. The mere statement of this claim refutes its validity.

The next claim is that the Government did not furnish the coal which the plaintiff had to use during the performance of the work. The plaintiff claims that coal was a part of the material which the Government agreed to furnish. There is a schedule attached to the contract and made a part of it which recites the materials which the United States was to furnish; coal is not one of the materials there recited. Moreover the coal was used to operate the locomotives and other equipment furnished the plaintiff by the Government, and it is expressly provided in the contract that the plaintiff should "provide all fuel and men to operate" them. The plaintiff made this claim to the officer in charge who decided against it. The contract provides as follows:

"Unless otherwise specifically set forth the contractor shall furnish all materials, labor, etc., necessary to fully complete the work according to the true intent and meaning of the drawings and specifications, of which intent and meaning the officer in charge shall be the interpreter. Except when otherwise indicated no local terms or classifications will be considered in the interpretation of the contract or the specifications forming a part thereof."

The plaintiff must abide by the decision of the officer in charge.

The next claim is for materials which the Government alleges were not returned as provided for in the contract, and for which in the final settlement the plaintiff was charged the sum of \$1,493.68. The plaintiff claims that the materials were returned. A list of this material was submitted to the plaintiff, which has been carefully checked by the Government. It does not appear from the evidence that these materials were returned, and under the terms of the

contract the Government had the right to withhold from the plaintiff the value of these materials.

The next claim is for delay in arranging for plaintiff's starting work. The plaintiff was to commence work on June 10, 1920, it started work on June 13, 1920. The delay was not unreasonable nor does it satisfactorily appear that the delay was wholly caused by the Government. The plaintiff made no protest nor complaint at the time and did not file its claim until March 14, 1921. We do not think it is entitled to recover.

[fol. 75] The next claim is for delay due to a change in plans for a fill. The facts as to this delay are set out in Finding VIII. A supplemental contract was entered into by the plaintiff with the United States to cover the extra work made necessary by the change in plans, and the plaintiff was paid the sum of \$2,515.54 under the terms of that contract. At the time of the making of this contract the plaintiff made no claim for delay and no protest was made by it at that time. The general work went on, no idleness resulted, and it does not appear that the plaintiff was damaged by reason of the change in the plan.

The next two claims are for alleged delays in recalculating the amounts of concrete for coke hoppers and in connection with the change of plans for making earth fill for railroad tracks at river power house. In both of these cases the plaintiff entered into supplemental contracts with the United States and was paid in full for its work under the terms of those contracts. No claim was made by the plaintiff on account of delay when these contracts were signed by it, nor at any time until March 14, 1921. No idleness of employees resulted nor was the plaintiff damaged.

The petition must be dismissed. It is so ordered.

Downey, Judge; Booth, Judge, and Campbell, Chief Justice, concur.

[fol. 76]

V. JUDGMENT

At a Court of Claims held in the city of Washington on the Twenty-eighth day of April, A. D. 1924, judgment was ordered to be entered as follows:

The Court, upon due consideration of the premises, find in favor of the defendant, and do order and adjudge that the plaintiff, as aforesaid, is not entitled to recover and shall not have and recover any sum in this action of and from the United States; and that the petition herein be and the same hereby is dismissed: And it is further ordered and adjudged that the United States shall have and recover of and from the plaintiff, as aforesaid, the sum of One hundred and fourteen dollars and eleven cents (\$114.11), the cost of printing the record in this court, to be collected by the clerk, as provided by law.

By the Court.

VI. PROCEEDINGS AFTER THE ENTRY OF JUDGMENT

On June 25, 1924, the plaintiff filed a motion for a new trial.

On October 20, 1924, the court entered the following order:

It is ordered by the court this 20th day of October, 1924, that the plaintiff's motion for new trial be and the same is overruled.

[fol. 77] VII. PETITION FOR APPEAL—Filed January 5, 1925

The plaintiff, the Union Insulating & Construction Co., a corporation, does hereby make application for appeal to the Supreme Court of the United States from judgment of the Court of Claims, and prays that an order may be entered herein allowing the appeal of the plaintiff to the Supreme Court of the United States.

Union Insulating & Construction Co., a Corporation, Plaintiff, by Edmund D. Adecock, George I. Haight, Its Attorneys.

VIII. ORDER ALLOWING APPEAL

It is ordered by the court this 12th day of January, 1925, that the plaintiff's application for appeal be and the same is allowed.

[fol. 78]

IN COURT OF CLAIMS

[Title omitted]

CLERK'S CERTIFICATE

I, F. C. Kleinschmidt, Assistant Clerk Court of Claims, certify that the foregoing are true transcripts of the pleadings in the above-entitled cause; of the argument and submission of case; of the findings of fact, conclusion of law and opinion of the court by Hay J.; of the judgment of the court; of the proceedings had after the entry of judgment; of the plaintiff's application for an appeal; of the order of the court allowing plaintiff's application for appeal.

In testimony whereof I have hereunto set my hand and affixed the seal of said Court at Washington City January 13, 1925.

F. C. Kleinschmidt, Assistant Clerk Court of Claims. (Seal of Court of Claims.)

Endorsed on cover: File No. 30,840. Court of Claims. Term No. 263. Union Insulating & Construction Company. Appellant vs. The United States. Filed January 30, 1925. File No. 30,840